Accepting a "new norm" – what level of PPE do we really need for surgery during COVID-19?

Editor

During the height of the COVID-19 pandemic, non-essential operations that were not life-saving were delayed in order to reallocate resources, such as personal protective equipment (PPE) and Intensive Care beds, to the frontlines[1]. As this pandemic will likely be protracted, it is imperative that measures are instituted to allow the resumption of surgical services. This is especially important as the gradual easing of lockdown measures globally will inevitably result in a sudden increase in demand for surgical provision[2].

There have been several recommendations regarding measures to be introduced in the operating room (OR), largely based on consensus among healthcare workers (HCW) and hospital practices worldwide[2,3]. A negative-pressure OR should be dedicated for COVID-19 positive patients, and equipment should be single-use and disposable or covered with disposable plastic wrapping where possible. HCW are to be properly trained and decked in PPE, including an N95 mask or powered air-purifying respirator (PAPR)[4]. Patients must wear surgical masks and aerosol-generating procedures (AGPs) should be minimized or avoided[2,3].

In Singapore, we have had two cases where patients were only found to be COVID-19 positive post-operatively, hence the HCW who only donned surgical masks were quarantined. The first case was deemed a low-risk patient who had an uneventful early laparoscopic cholecystectomy for acute cholecystitis. This patient desaturated two days later and was subsequently diagnosed with severe COVID-19 pneumonia requiring ICU admission[5]. A total of 21 HCW were exposed with three quarantined according to national protocols. The second case is a foreign worker living in a dormitory (close quarters living arrangement) who underwent an incision and drainage of a perianal abscess. He had been COVID-19 swab-negative twice before admission, but was COVID-19 positive on the swab taken before discharge on post-operative day 1. Two HCW were exposed, one of whom was quarantined. In both instances, all HCW were closely monitored for 14 days and remained asymptomatic.

There are two important pieces of information that can be gleaned from the above illustrations. Firstly, those whose COVID-19 status are unknown but deemed low-risk (*Case 1*), or previously negative (*Case 2*), can still turn out to be positive. Nevertheless, it is neither feasible nor sustainable to wear full PPE and perform all operations under the strict infection control measures previously mentioned. Secondly, there is some reassurance that no HCW was diagnosed with COVID-19 despite not being in full PPE, even though a few were involved in high-risk AGPs. Although there is evidence that PPE is essential in slowing the spread of this contagious virus[6], the level of PPE mandatory for day-to-day practice needs to be reviewed, while considering both the safety of HCW and resource availability.

It is therefore evident that more research is required regarding the posture to adhere to in the OR. Routes of COVID-19 transmission, scope of AGPs, as well as which specific procedures require full PPE, must be clearly defined[1,2]. This will enable us to better allocate our limited resources and alleviate concerns regarding the global shortage of PPE.

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1 Søreide K, Hallet J, Matthews JB, Schnitzbauer AA, Line PD, Lai PBS *et al.* Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. *Br J Surg* 2020; https://doi.org/10.1002/bjs.11670 [Epub ahead of print].

2 COVIDSurg Collaborative. Global guidance for surgical care during the COVID-19 pandemic. *Br J Surg* 2020; **107**: 1097–1103.

3 Welsh Surgical Research Initiative (WSRI) Collaborative. Recommended operating room practice during the COVID-19 pandemic: systematic review. *Br J Surg* 2020; https://doi.org/10.1002/bjs5.50304 [Epub ahead of print].

4 Chew MH, Chau KC, Koh FH, Ng A, Ng SP, Ng SF *et al.* Safe operating room protocols during the COVID-19 pandemic. *Br J Surg* 2020; **107**: e292–e293.

5 Oh SL, Chia CLK, Chen YR, Goo TTJ, Rao AD, Tan KY *et al.* Laparoscopic surgery in a patient with atypical presentation of COVID-19: salient points to reduce the perils of surgery. *Singapore Med J* 2020; **61**: 443–444.

6 Jessop ZM, Dobbs TD, Ali SR, Combellack E, Clancy R, Ibrahim N *et al*. Personal Protective Equipment (PPE) for Surgeons during COVID-19 Pandemic: A Systematic Review of Availability, Usage, and Rationing. *Br J Surg* 2020; **107**: 1262–1280.